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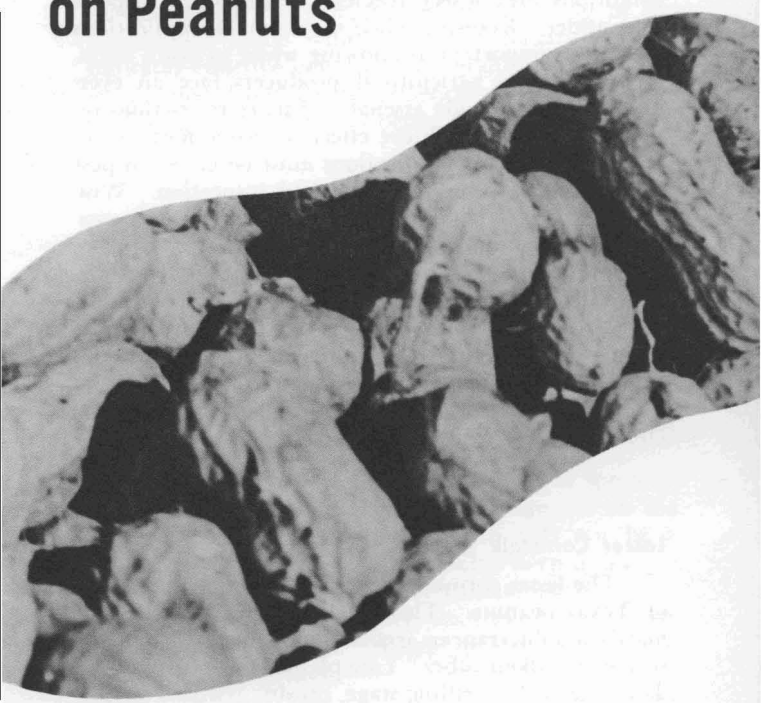
TEXAS GUIDE for Controlling Insects on Peanuts



TEXAS A&M UNIVERSITY
TEXAS AGRICULTURAL EXTENSION SERVICE
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TEXAS GUIDE FOR CONTROLLING INSECTS ON PEANUTS

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MANY INSECTS and mite species attack peanuts. Variations in weather and cultural practices cause insect problems to fluctuate from one season to the next. Because insect populations vary and economic levels of damage to peanuts have not been determined fully, producers should thoroughly analyze the situation before beginning insecticide applications. Land potential, anticipated yield, stage of growth, moisture conditions and insect species are important aspects to consider. Knowing when *not* to make applications often is as important as knowing when to begin them, especially since agricultural producers face an ever-decreasing insecticide arsenal and more restrictions on pesticide use. To achieve effective, economical insect control, insecticide applications must be based on pest infestations as determined by field inspection. Wise chemical use is paramount to profitable peanut production, but sound insect control programs also make maximum use of natural and cultural controls. Natural populations of parasites and predators should be utilized and protected. Use chemicals only if economic populations of injurious insects develop. Immediate results and long-range consequences require careful consideration to develop profitable, effective insect control programs.

INSECT PESTS

Lesser Cornstalk Borer

The lesser cornstalk borer is the major insect pest of Texas peanuts. This small, slender larva is primarily a subterranean feeder, living beneath the soil surface in silken tubes. Late-planted peanuts may be damaged in the seedling stage, causing reduced stands. Worms or larvae injure mature plants, feeding on pegs, pods, stems and roots. Pegs are cut off below ground surface, and the developing nuts are hollowed out. Stems and roots are scarred and may be girdled.

This insect usually is most harmful to peanuts grown under dryland conditions or during drouth years. Prolonged rainfall and irrigation in certain fields appear to contribute to larval mortality. Timing of irrigation or amount of water applied at each irrigation may contribute to differences in larval populations. Damage may be reduced by keeping land free of volunteer peanuts, weeds and grass several weeks before planting.

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To achieve effective control and prevent overuse of insecticides, producers should be thoroughly familiar with lesser cornstalk borer population levels in their fields. Thorough, frequent field checks are necessary to determine these levels. In this way, insecticide applications can be timed precisely and unnecessary treatments avoided. If the producer is unable to make field checks regularly, he should employ competent commercial field checkers for the season.

How to Make Counts

Producers should make field checks beginning at stand and continuing at a minimum of weekly intervals. A *minimum* of five plants should be examined at each of five locations selected randomly throughout the field, but keeping away from field borders. As the number of locations and plants inspected increases, the more accurate the estimated infestation level will be. Inspect the base of the plant just below the soil surface for feeding damage, larval tubes or larvae. Later in the season, pegs and peanuts also should be examined. Divide the total number of plants inspected into the number of infested plants found to obtain a percent infestation figure. Do not use dead larvae or plant damage to derive an infestation level. See the following table and example.

Number of infested plants	No. plants examined			
	25	33	50	100
	Percent infestation			
1	4	3	2	1
2	8	6	4	2
3	12	9	6	3
4	16	12	8	4
5	20	15	10	5
6		18	12	6
7			14	7
8			16	8
9			18	9
10				10

Example:

If there were five infested plants (left hand column) in a total of 50 plants examined (upper row), there would be 10 percent infestation. If many larvae are found on a single plant, it is still counted as *one* infested plant.

When to Begin Chemical Control

Research in 1969 and 1970 indicated that yield or quality losses did not occur until certain infestation levels were reached. Irrigated peanuts should be treated after initial pegging when 15 percent or more of the plants are infested with lesser cornstalk borer larvae; in dryland, 10 percent or more. However, before initial pegging, infestation levels of more than 5 percent in dryland and more than 10 percent in irrigated peanuts will require treatment. Treatment

of lower level infestations probably would not be profitable for several reasons. In addition to losing the cost of the insecticide, the producer could create problems requiring additional treatments. Along with insecticide applications, destruction of beneficial insects occurs, predisposing peanuts to certain foliage feeders and spider mites.

	Dryland	Irrigation
Before initial pegging	5%	10%
After initial pegging	10%	15%

Thrips

Thrips feed primarily in terminal leaf clusters between folds of young leaflets by rasping the leaf surface and sucking up plant juices. This results in dwarfing and malformation of leaves, causing a condition called "pouts." Feeding commonly occurs during the first month after plant emergence.

Spraying or granular application of insecticides at planting effectively controls this insect, but does not generally increase yields. Yield increases depend on the extent of thrips damage or population numbers and the stage of plant growth when damaged.

Foliage Feeding Insects

Foliage feeding insects can cause considerable damage. This group includes the corn earworm or cotton bollworm, red-necked peanutworm, armyworms, salt-marsh caterpillars and grasshoppers. Research on control of foliage-feeding pests indicates that the peanut plant is extremely tolerant to foliage loss. Physical removal of three-fourths of the foliage before bloom or half after bloom does not adversely affect yields or grades in irrigated peanuts. Removal of more than half the foliage reduces dryland peanut yields, and defoliation late in the season may result in lowered yields on both dryland and irrigated acreages. A large amount of feeding damage in the axis reduces pegging and may lower yields in dryland and irrigated production. These secondary insect pests can become economically important if unwarranted insecticide use removes natural populations of beneficial insects that provide effective biological control. Frequent field inspections should be made before applying insecticides to determine the presence of economically damaging levels of injurious insects. Should chemical control measures become necessary, apply when worms or grasshoppers are small.

Miscellaneous Pests

Miscellaneous pests include spider mites, three-cornered alfalfa hoppers, leafhoppers, cutworms, armyworms, webworms, wireworms, white grubs, corn rootworms, leaf miners, flea beetles, stink bugs and lygus bugs. If these pests develop large infestations, apply insecticides before extensive damage occurs. In some

areas of the state, certain species of spider mites in peanuts have become highly resistant to most organophosphate insecticides and cannot be controlled with registered materials in most cases. Natural populations of beneficial insects usually control spider mites effectively. However, too frequent applications or misuse of any insecticide can result in the destruction of beneficial insects, thus favoring spider mite population buildups and the occurrence of resistance.

Burrowing Bugs

Burrowing bugs have become an economic pest of peanuts. Adult burrowing bugs migrate into peanut fields around mid-summer and usually are beneath the soil surface attacking developing nuts. Research indicates that damage occurs only when young or maturing peanuts are present. Burrowing bug feeding results in a light-to-dark-brown mottling of the kernels and grade reductions. Preliminary research indicates effective control when granular insecticides are applied, based on the presence of burrowing bugs or damage, 25 to 30 days before harvest.

CAUTIONS

1. Read the label on each pesticide container before use. Follow instructions carefully; heed caution and warning statements and observe precautions concerning avoidance of residues. Adhere strictly to all restrictions concerning use of plant material as animal feed.

2. Keep pesticides in original containers. Keep them from children or animals, preferably under lock and away from food, feed, seed or other material that may become harmful if contaminated.

3. Dispose of the empty containers as specified on the label. If disposal instructions are not on the label, burn containers where smoke will not be a hazard or bury them at least 18 inches deep in a place where water supply will not be contaminated.

4. Parathion is extremely toxic to man and other warm-blooded animals. Apply in strict accordance with label instructions.

5. Improper use of insecticides can recsult in poor insect control as well as crop condemnation. When using approved insecticides, do not exceed recommended maximum dosage levels and be sure to allow the proper time between the last application and harvest. Using materials without proper label clearance or exceeding approved tolerance limits can result in crop condemnation.

POINTS ON APPLICATION

1. Insecticide use should be restricted to actual need, based on field inspection. Inspect peanut fields, frequently and thoroughly. Begin applications while worms are small before they cause serious damage.

2. Use any row-crop duster or sprayer that can be adjusted to desired row width. Direct flat fan

nozzles to the base of the peanut plant for lesser cornstalk borer control or direct hollow cone nozzles to cover the plant thoroughly for foliage feeding insect control.

3. Nozzle size, number of nozzles, ground speed and pressure influence the rate of output per acre. Before starting the season, calibrate the sprayer accurately to insure application of recommended amounts of insecticide. Periodically, check calibration during the season. For information on the use of sprays and spray machinery, see L-486, *Insecticidal Spraying of Field Crops with Ground Machinery* and L-764, *Pesticide Application Ground Equipment Calibration Guide.*

4. Apply dusts when air is calm. Dew is not necessary for dust applications. Dusts and wettable powders are washed off by light showers more easily than sprays. Place dust nozzles on ground machines 4 to 6 inches above the plant. In late season, the rate of application may need to be increased to give adequate coverage.

5. Apply insecticidal sprays when weather conditions are optimum to avoid drift to adjacent fields or crops. If showers occur, repeat the application as soon as possible if insecticide is washed off within 24 hours, *only* when treating for foliage feeders. Some insecticides are destructive to honey bees. Care should be taken, since bees help pollinate many agricultural crops.

6. Maintain accurate, detailed records of pesticide use. Include such information as dates of purchase and application, type of equipment used, weather conditions, locations of pesticide applications and rates applied.

POLICY FOR MAKING INSECT CONTROL RECOMMENDATIONS

Recommendations on use of pesticides made by the Texas Agricultural Extension Service and the Texas Agricultural Experiment Station are based upon:

- Effectiveness under Texas conditions
- Avoidance of residues in excess of allowable tolerances
- Avoidance of toxicity to desirable vegetation, animals and humans
- Avoidance of adverse side effects upon beneficial predators, parasites, honey bees, fish and other wildlife, plants, animals and humans.

Suggested pesticides must be registered and labeled for use by the Environmental Protection Agency and the Texas Department of Agriculture. The status of pesticide label clearances is subject to change, and may have changed since this publication was printed. County Extension agents and appropriate specialists are advised of changes as they occur.

The USER always is responsible for the effects of pesticide residues on his livestock and crops, as well as problems that could arise from drift or movement of the pesticide from his property to that of others. ALWAYS READ AND FOLLOW CAREFULLY THE INSTRUCTIONS ON THE CONTAINER LABEL.

For further information, contact your county Extension agent, Texas Department of Agriculture or:

Leader-Agricultural Chemicals, Texas A&M University
(713) 845-1353

Insect	Insecticides (Listed at random)	Rates (Pounds technical per acre)	Formulation	Remarks
Thrips	Carbaryl (Sevin)	1.5	Spray or dust	**Carbaryl.** Apply as needed. No time limitation. Has caused slight burn on seedling peanuts and rapidly growing plants, but no yield losses have been observed.
Lesser cornstalk borer				See lesser cornstalk borer in text for details on type of damage, need for control, timing applications and scouting procedures.
	Diazinon	2.0	Granular	**Irrigated peanuts.** Apply granular materials in a 12- to 14-inch uniform band directly over the row. If applications are made when plant size permits incorporation, mix granules thoroughly into the top few inches of soil. However, granular applications should precede irrigation and be watered in thoroughly. Begin applications when infestation levels exceed 10% before initial pegging and 15% after initial pegging. **Diazinon.** Livestock may be fed (1) peanut forage 7 days after treatment and (2) peanut hay or hulls 21 days after treatment.
	Dyfonate	1.5	Granular	**Dyfonate.** Apply just prior to pegging and incorporate lightly into the soil.
	Parathion	0.5-0.75	Spray	**Dryland peanuts.** Apply sprays using two flat fan nozzles per row directed so that only the lower stems and a 6- to 8-inch band of soil are covered on each side of the row. This allows beneficial insect populations to exist on the upper two-thirds of the plant foliage. Repeat applications as indicated by infestation levels. **Parathion.** Do not apply within 15 days of harvest or grazing.
Burrowing bugs	Diazinon	2.0	Granular	See burrowing bugs in text for type of damage, seasonal habits, need for control and timing applications. **Diazinon.** See restrictions under lesser cornstalk borer. Apply in a 12- to 14-inch band followed by thorough irrigation. Need for application should be based on the presence of burrowing bugs and/or damage when young or maturing peanuts are present.
Foliage feeders Armyworms Climbing cutworm Corn earworm Grasshoppers Leafhoppers Red-necked peanutworm Salt-marsh caterpillar Three-cornered alfalfa hopper Webworm	Carbaryl (Sevin) Parathion	1.5 0.5-1.0	Spray or dust Spray	For climbing cutworms, apply on soil in late afternoon. Make regular, frequent inspections of peanut fields. Start applications before worms cause serious damage and while they are small. Small worms are easier to control. **Parathion.** Use only where obtaining control has been difficult. **Carbaryl and parathion.** Observe restrictions cited above for thrips and lesser cornstalk borer.
Spider mites	Parathion Sulfur	0.5-0.75 20-25	Spray or dust Dust	**Parathion.** Observe restrictions under lesser cornstalk borer. **Sulfur.** No time limitations.
White grubs Wireworms	Parathion Diazinon	2.0 2.0	Spray Granular	Generally a problem when peanuts follow grass sod. Apply if white grubs or wireworms are observed when peanut land is turned. Apply before planting. Work into top 3 inches of soil. See restrictions under lesser cornstalk borer.
Southern corn rootworm	Dasanit Dyfonate	2.0 1.5-2.0	Granular Granular	**Dasanit.** Apply uniformly in a 12- to 18-inch band over the row at pegging. Mix granules into soil to a depth of 1 to 2 inches on each side of row. Do not feed vines or hay. **Dyfonate.** Apply in an 18-inch band over the rows 36 inches apart just before pegging and incorporate lightly into the soil.

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